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(71) Applicant *(for all designated States except US)*: **TELEFONAKTIEBOLAGET LM ERICSSON (PUBL)** [SE/SE]; S-126 25 Stockholm (SE).

(72) Inventor; and

(75) Inventor/Applicant *(for US only)*: **PRONK, Peter** [NL/NL]; Schepperstraat 74, NL-2572 AL Den Haag (NL).

(74) Agents: VAN KAN, J., J., H. et al.; Algemeen Octrooibureau, World Trade Center, Pastoor Petersstraat 160, NL-5612 LV Eindhoven (NL).

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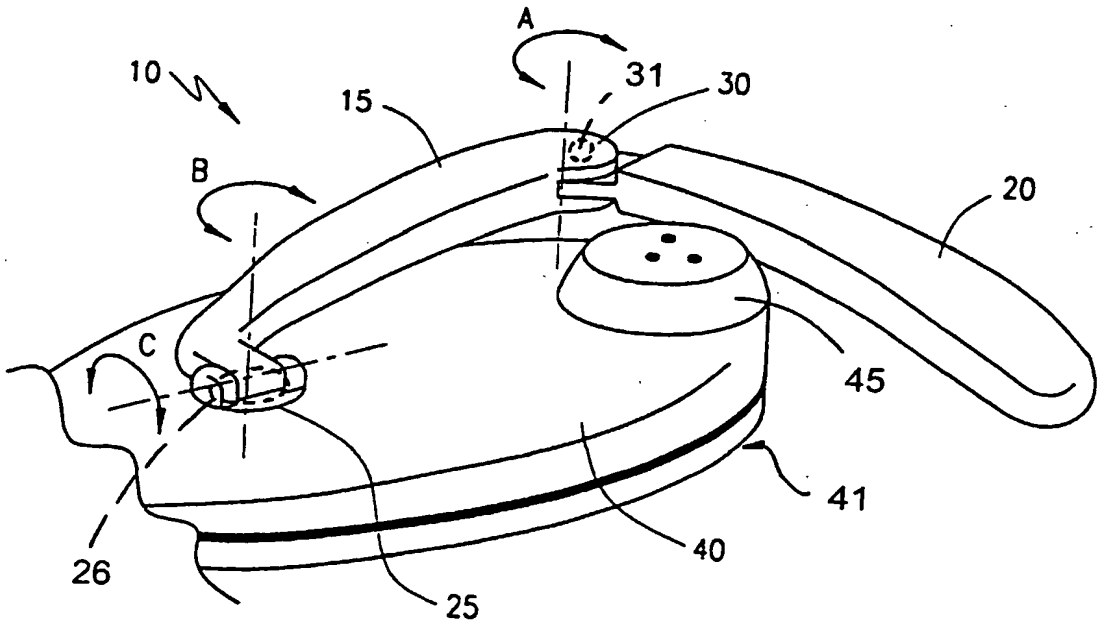
(54) Title: FOLDABLE HOOK FOR A HEADSET AND A HEADSET EQUIPPED THEREWITH



(57) Abstract: A foldable hook (10) for affixing a headset (41) to the ear of a user includes a first member (15) having a first end and a second end. The first end is rotatably connected (25) to the headset. A second member (20) also includes a first en and a second end, and the first end of the second member (20) rotatably connects (30) to the second end of the first member (15). The second member (20) contacts at least a portion of the ear of the user assisting in affixing the headset (41) to the ear of the user.

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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

Title

Foldable hook for a headset and a headset equipped therewith.

Field of the Invention

The present invention relates generally to headsets and, more specifically, to a foldable hook for a headset.

Background of the Invention

Headsets enable a user to carry out two-way communications while still leaving a user's hands free to perform other functions. Headsets are used with wireline telephones, wireless telephones and a variety of other communication devices wherein two-way communications occur between a user and another party or a voice actuated device.

One type of headset useful with portable communication devices are headsets that are attached to only the ear of a user, using some type of a hook or attaching component. The hook affixes the headset to the ear or head of the user and positions a speaker near the user's ear and a microphone near a user's mouth to enable hands free communication. These types of headsets are very popular with, for example, mobile telephones wherein a user may continue to perform other functions such as driving or working while still communicating via their mobile telephone.

The problem with these types of headsets arises when they are not in use, i.e., placed upon the ear or head of a user. The combination of the main body of the headset and the hook for attaching it to a user produces a large product which is not easily stored. A headset having a hook sticking out from the main housing does not easily fit within a pocket or purse of a user. Additionally, the hook extending from

the body of the headset makes it difficult to remove the headset from the storage area since the hook may snag or catch upon other items. Thus, there is needed some manner of providing an apparatus to provide a compact and more efficient storage for the headset when not in use.

Summary of the Invention

The present invention overcomes the foregoing and other problems with a foldable hook for affixing a headset to an ear or a user. The foldable hook comprises a first member having first and second ends. The first end of the first member rotatably connects to the headset. A second member also has first and second ends. The first end is rotatably connected to the second end of the first member and contacts at least a portion of the ear of the user.

With the foldable hook according to the invention, the first member and the second member may wrap around the housing of the headset, in a manner such that a much smaller package is created for storage.

In a further embodiment of the invention, an integral third member can be used for rotating the second member about its connection with the first member and for rotating the first member about its connection with the housing of the headset, in order to be able to enable left/right wearing.

The invention further relates to a headset equipped with such a foldable hook.

Utilizing the above described invention, a user may store the headset in a substantially reduced size package enabling the headset to be easily placed within a pocket or purse of the user while greatly decreasing the potential for inadvertently snagging a hook on other items within a pocket, purse or other storage location.

A more complete understanding of the above-mentioned and other features and advantages of the method and apparatus of the present

invention may be obtained, in a non-limiting manner, by reference to the following Detailed Description when taken in conjunction with the accompanying Drawings of a preferred embodiment of the invention.

Brief Description of the Drawings

FIGURE 1 schematically illustrates the foldable headset hook of the present invention in an open position;

FIGURE 2 schematically illustrates the foldable headset hook in a closed position;

FIGURE 3 schematically illustrates the foldable headset hook in a closed position around a headset housing;

FIGURE 4 schematically illustrates the foldable headset hook attaching a headset to the ear of a user; and

FIGURES 5a, 5b and 5c schematically illustrate the range of movement of the foldable headset hook.

Detailed Description

Referring now to the drawings, and more particularly to FIGURE 1, there is illustrated the foldable hook of the present invention. The main portion of the foldable hook 10 consists of a first member 15 and a second member 20. The first member 15 interconnects the foldable hook 10 to the housing 40 of a headset 41 via a rotatable joint 25. The rotatable joint 25 enables the first member 15 of the foldable hook 10 to rotate about the axis B and more compactly wrap the foldable hook 10 about a housing 40 of the headset 41 as will be more fully described in a moment.

The rotatable joint 25 interconnecting the foldable hook 10 to the housing 40 of the headset 41 includes a spring or other biasing unit 26 (shown in dotted lines) for biasing the foldable hook 10 to a closed (i.e., wrapped around the headset) position. The rotatable joint

25 also enables rotation of the first member 15 about axis C to allow the headset 41 to be worn on the left and right ears. Alternatively, the first member 15 may be reattachable to the joint 25 to enable left/right wearing.

A second member 20 of the foldable hook 10 is connected to the first member 15 via a second rotatable joint 30. The second rotatable joint 30 enables the second member 20 to rotate about the axis A. As with the first joint 25, the second joint 30 includes a spring or other biasing unit 31 (shown in dotted lines) biasing the second member 20 to a closed position. The second member 20 has a generally arcuate shape enabling the second member 20 to more effectively wrap around and engage an ear of a user. The second member 20 may further include some type of padded covering (not shown) to enable the second member 20 to more effectively and comfortably engage an ear of a user.

Referring now to FIGURES 2 and 3, there is illustrated the foldable hook 10 in a closed position both disconnected from (FIGURE 2) and connected to (FIGURE 3) the housing 40 of a headset. As can be seen from each figure, the first member 15 is rotated toward the housing 40 of the headset by the biasing forces 26 of joint 25. Likewise, the second member 20 is rotated toward the opposite side of the housing 40 by the biasing forces 31 of the (spring within) joint 30. In this way, the first 15 and second 20 members of the foldable hook 10 wrap around the earpiece 45 of the housing 40 providing a much more compact package than if the hook remained in an extended position.

An actuator arm 35 integrally connected with the second member 20 may extend from the second member 20 or from an integral portion thereof. By manipulating the actuator arm 35, the second member 20 may be rotated about its connection 30 with the first member 15 to enable the foldable hook 10 to move from a closed to an open position in order to more easily engage the ear of the user. Additionally, the actuator arm 35 may be used to rotate the first member 15 about its rotatable joint 25 with the housing of the headset in order to better

position the foldable hook 10 for engaging the ear of a user. The actuator arm 35 may include a number of ridges 36 defined therein to provide the user's finger with a better grip of the actuator arm 35.

Referring now to FIGURE 4, there is illustrated a headset housing 40 including a foldable hook 10 of the present invention mounted on the ear 12 of a user 11. As can be seen from FIGURE 4, the second member 20 clamps on the back of the ear 12 of the user 11 while the biasing forces of joint 30 maintain the second member 20 in contact with the ear 12. Likewise, the first member 15 is maintained in a position to support the second member 20 by the biasing forces of joint 25 which is not visible in FIGURE 4. In this manner, a microphone 44 and speaker 45 (not shown in FIGURE 4) within the headset housing 40 may be maintained in close proximity to bOth the mouth 13 and the ear 12 of the user 11, respectively. While FIGURE 4 illustrates the use of a wireless headset including a wireless transceiver 42 (schematically indicated by dotted lines) for establishing a connection with an associated device such as a mobile telephone, computer, etc., the foldable hook 10 of the present invention may also be used with any type of wireless or wireline headset using, for example, the Bluetooth protocol or any known wireless or wireline protocols.

Referring now to FIGURES 5a, 5b and 5c there is illustrated the manner in which the foldable hook 10 moves from an open position about the ear of a user to a closed position wrapped around a housing 40 of a headset. In the open position illustrated, in FIGURE 5a, the first member 15 is extended away from the housing 40 of the headset and the second member 20 extends to wrap around the ear of a user (not shown). FIGURE 5b illustrates a partially closed configuration wherein the first member 15 has moved to a closed position wrapped around the housing 40 of the headset. The second member 20 remains open. In FIGURE 5c, the second member 20 has also moved to a closed position wrapped around the housing 40 of the headset. As can be seen, when the first member 15 and second member 20 are in the closed position and wrapped around the housing 40 of

the headset, a much smaller package is created for storage.

Utilizing the above described invention, a user may store their headset in a substantially reduced size package enabling the headset to be easily placed within a pocket or purse of the user while greatly decreasing the potential for inadvertently snagging a hook on other items within a pocket, purse or other storage location.

The previous description is of a preferred embodiment for implementing the invention, and the scope of the invention should not necessarily be limited by this description. The scope of the present invention is instead defined by the following claims.

Claims

1. A foldable hook for affixing a headset to an ear of a user, comprising: a first member having a first and second end, said first end being rotatably connectable to the headset; and a second member for contacting at least a portion of the ear of the user having a first end and a second end, said first end of the second member rotatably connect to the second end of the first member.

2. The foldable hook of Claim 1, wherein the rotatable connection between the first end of the first member and the headset is biased to a first position.

3. The foldable hook according to any of the previous Claims, wherein the rotatable connection between the first end of the second member and the second end of the first member is biased to a first position.

4. The foldable hook according to any of the previous Claims, further including a third member integral with said second member for moving said first member and said second member between a first position and said second position.

5. The foldable hook according to any of the previous Claims, wherein the second member has a substantially arcuate shape for fitting around the ear of the user.

6. The foldable hook according to any of the previous Claims, wherein the first and second members are configurable for either a left ear or a right ear of the user.

7. The foldable hook according to any of the previous Claims, further including a wireless transceiver within the headset for communicating with an associated device.

8. The headset of Claim 7, wherein the wireless transceiver operates according to the Bluetooth protocol.

9. An apparatus for affixing a headset to an ear of a user, comprising: a first member having a first end and a second end; a second

member for contacting at least a portion of the ear of the user having a first end and a second end; a first rotatable connection rotatably interconnecting the first member with the head set about a first axis, said first rotatable connection being biased to a closed position; a second rotatable connection interconnecting the second member with the first member, said second rotatable connection being biased to the closed position; and a third member integral to said second member for rotatably moving said second member about said second rotatable connection and rotatably moving said first member about said first rotatable connection.

10. The apparatus of Claim 9, wherein the second member has a substantially arcuate shape for fitting around the ear of the user.

11. The apparatus according to any of the Claims 9 or 10, wherein the first and second members are configurable for either a left ear or a right ear of the user.

12. The apparatus according to any of the Claims 9, 10 or 11, wherein the first rotatable connection further provides movement of the first member about a second axis enabling configuration for the left ear and the right ear of the user.

13. A headset, comprising: a housing; a first member having a first and second end, said first end being rotatably connected to the housing; and a second member for contacting at least a portion of the ear of the user having a first end and a second end, said first end of the second member being rotatably connected to the second end of the first member.

14. The headset of Claim 14, wherein the rotatable connection between the first end of the first member and the housing is biased to a first position.

15. The headset according to any of the Claims 13 or 14, wherein the rotatable connection between the first end of the second member and the second end of the first member is biased to a first position.

16. The headset according to any of the Claims 13, 14 or 15,

further including a third member integral with said second member for a moving said first member and said second member between a first position and a second position.

17. The headset of according to any of the Claims 13, 14, 15 or 16, wherein the second member has a substantially arcuate shape for fitting around the ear of the user.

18. The headset according to any of the Claims 13, 14, 15, 16 or 17, wherein the first and second members are configurable for either a left ear or a right ear of the user.

19. The headset according to any of the Claims 13, 14, 15, 16, 17 or 18, wherein the first rotatable connection further provides movement of the first member about a second axis enabling configuration for the left ear and the right ear of the user.

20. The headset according to any of the Claims 13, 14, 15, 16, 17, 18 or 19, further including a wireless transceiver within the housing for communicating with an associated device.

21. The headset of Claim 20, wherein the wireless transceiver operates according to the Bluetooth protocol.

22. A headset, comprising: a housing; a first member having a first end and a second end; a second member for contacting at least a portion of the ear of the user having a first end and a second end; a first rotatable connection rotatably interconnecting the first member with the head set about a first axis, said first rotatable connection biased to a first position and further providing movement of the first member about a second axis enabling configuration for the left ear and the right ear of the user; a second rotatable connection rotatably interconnecting the second member with the first member about a third axis, said second rotatable connection biased to a first position; and a third member integral to said second member for rotatably moving said second member about said second rotatable connection and rotatably moving said first member about said first rotatable connection.

23. The headset of Claim 22, further including a wireless

transceiver within the housing for communicating with an associated device.

24. The headset of Claim 22 or 23, wherein the wireless transceiver operates according to the Bluetooth protocol.

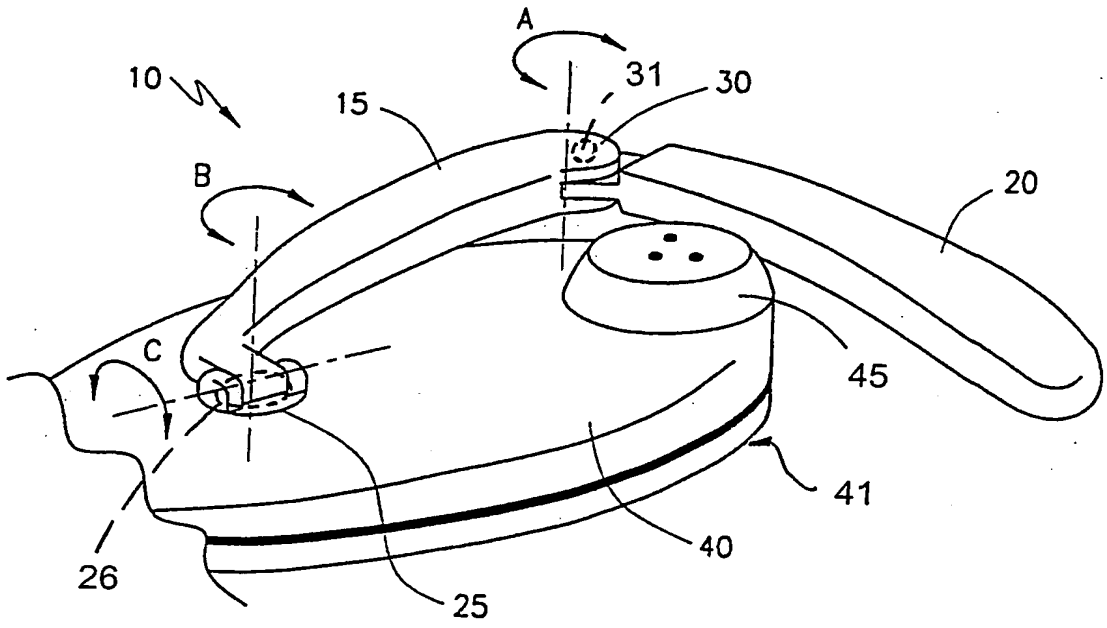

FIG. 1

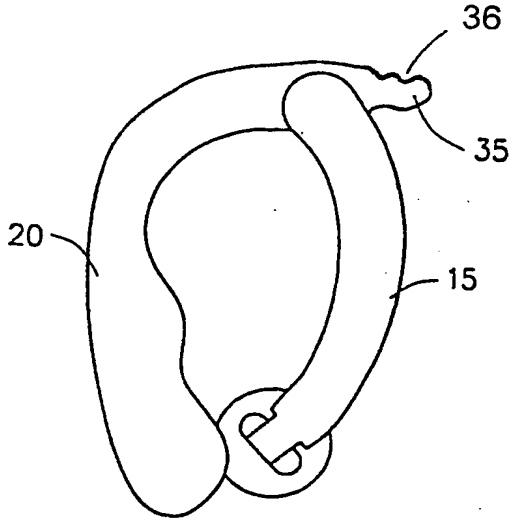

FIG. 2

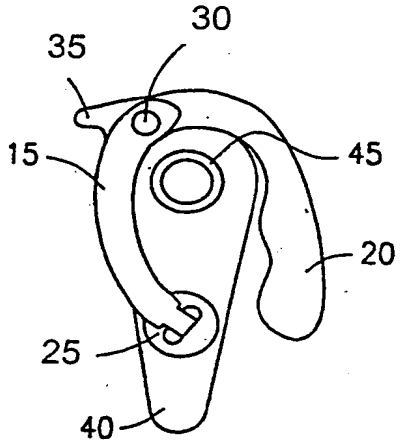

FIG. 3

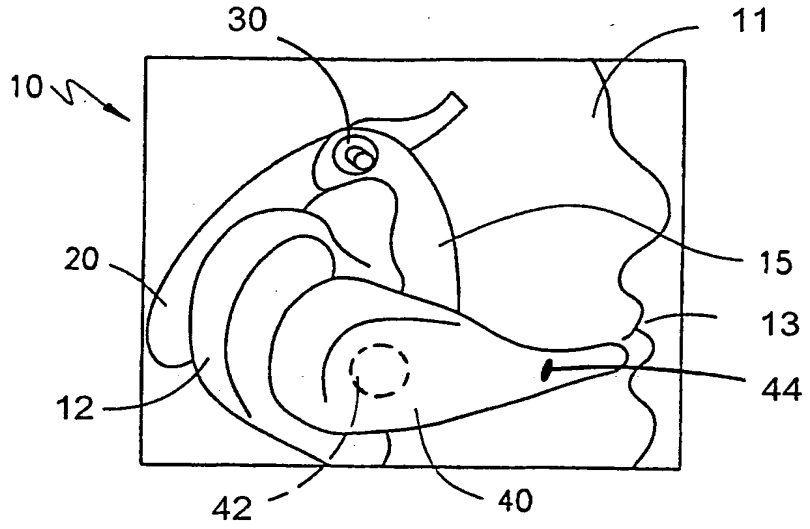

FIG. 4

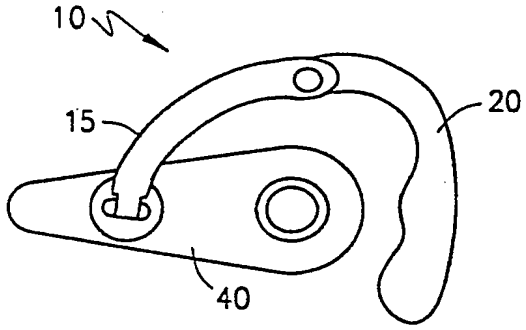

FIG. 5a

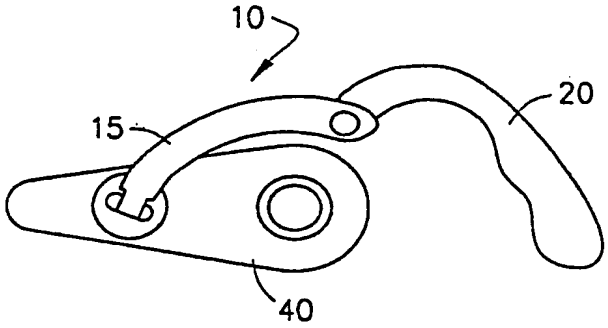

FIG. 5b

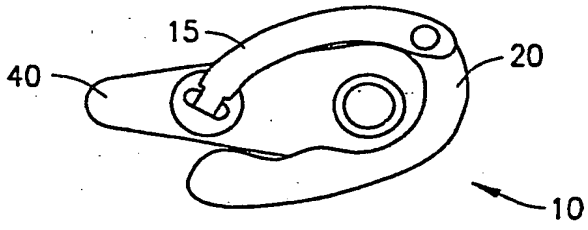

FIG. 5c

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(84) Designated States *(regional)*: ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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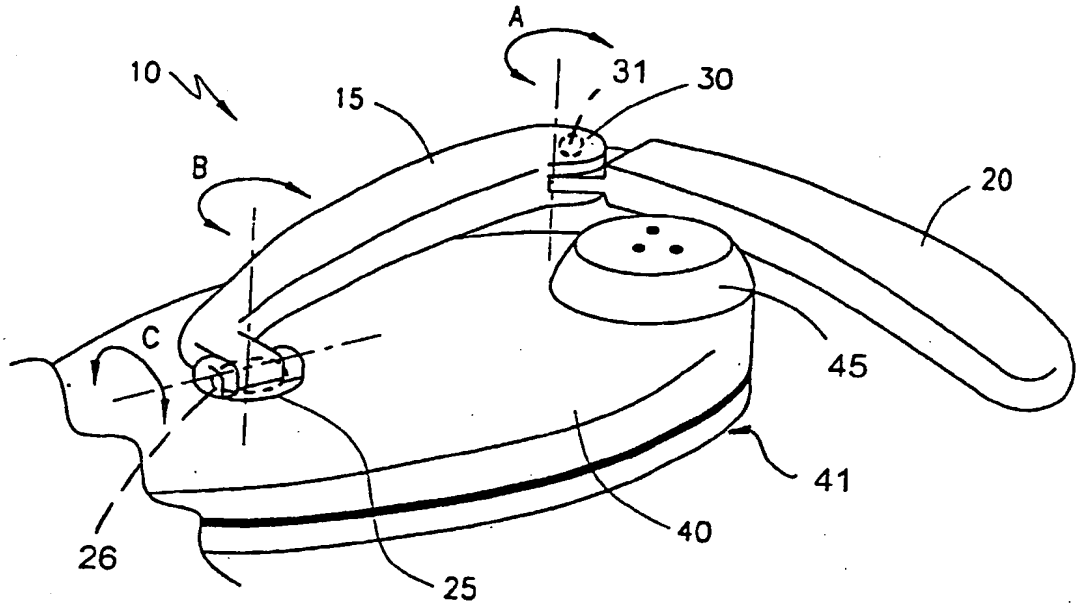
(54) Title: FOLDABLE HOOK FOR A HEADSET AND A HEADSET EQUIPPED THEREWITH



(57) Abstract: A foldable hook (10) for affixing a headset (41) to the ear of a user includes a first member (15) having a first end and a second end. The first end is rotatably connected (25) to the headset. A second member (20) also includes a first en and a second end, and the first end of the second member (20) rotatably connects (30) to the second end of the first member (15). The second member (20) contacts at least a portion of the ear of the user assisting in affixing the headset (41) to the ear of the user.

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A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H04R1/10

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	PATENT ABSTRACTS OF JAPAN vol. 009, no. 258 (E-350), 16 October 1985 (1985-10-16) -& JP 60 105326 A (NIPPON COINCO KK), 10 June 1985 (1985-06-10) abstract	1-24
A	DE 201 04 916 U (SIEMENS AG) 28 June 2001 (2001-06-28) page 1, line 5-33 page 2, line 19-34	1-24
A	PATENT ABSTRACTS OF JAPAN vol. 005, no. 133 (E-071), 25 August 1981 (1981-08-25) -& JP 56 069988 A (NEC CORP), 11 June 1981 (1981-06-11) abstract	1-24

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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Date of the actual completion of the international search	Date of mailing of the international search report
18 July 2003	28/07/2003
Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL – 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Authorized officer Zanti, P

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INTERNATIONAL SEARCH REPORT

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